EPIDEMIOLOGY AND INFECTION

FORMERLY THE JOURNAL OF HYGIENE

EDITED BY

J. R. PATTISON

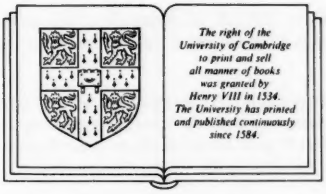
J. G. CRUICKSHANK C. R. MADELEY W. C. NOBLE

P. MORGAN-CAPNER
(ASSISTANT EDITOR)

IN CONJUNCTION WITH

M. J. ANDERSON
R. M. ANDERSON
R. D. BARRY
P. S. BRACHMAN
M. DEGRÉ
S. M. FEINSTONE
R. G. FINCH
R. J. GILBERT
ANNA HAMBRAEUS
M. H. HINTON
J. C. DE JONG
J. B. KURTZ
M. J. LEWIS
D. H. LLOYD
R. R. MARPLES
O. H. MEURMAN
P. P. MORTIMER
J. NAIDOO
J. S. OXFORD
B. ROWE
M. B. SKIRROW
R. S. TEDDER
H. E. TILLETT
R. VAN DER WAAIJ
A. T. WILLIS

VOLUME 99, 1987


The right of the University of Cambridge to print and sell all manner of books was granted by Henry VIII in 1534. The University has printed and published continuously since 1584.

CAMBRIDGE UNIVERSITY PRESS

Cambridge

New York New Rochelle Melbourne Sydney

Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
32 East 57th Street, New York, NY 10022, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 1987

Printed in Great Britain by the University Press, Cambridge

Contents

No. 1 (August 1987)

PAGE

Special Article. Oxford, J. S. What is the true nature of epidemic influenza virus and how do new epidemic viruses spread? 1

Hope-Simpson, R. E. and Golubev, D. B. A new concept of the epidemic process of influenza A virus 5

Koskinen, P., Vuorinen, T. and Meurman, O. Influenza A and B virus IgG and IgM serology by enzyme immunoassays 55

Anderson, R. M., Crombie, J. A. and Grenfell, B. T. The epidemiology of mumps in the UK: a preliminary study of virus transmission, herd immunity and the potential impact of immunization 65

Eghafona, N. O., Odama, L. E., Emejuaiwe, S. O., Obineche, E. N. and Tafida, D. S. Measles antibody levels in children of rural and urban areas of Nigeria following vaccination campaign 85

Rodrigues, F. M., Mandke, V. B., Roumiantzeff, M., Mohan Rao, C. V. R., Mehta, J. M., Pavri, K. M. and Poonawalla, C. Persistence of rabies antibody 5 years after pre-exposure prophylaxis with human diploid cell antirabies vaccine and antibody response to a single booster dose 91

Begg, N. T., Chamberlain, R. and Roebuck, M. Paralytic poliomyelitis in England and Wales, 1970–84 97

Little, T. W. A., Stevens, A. E. and Hathaway, S. C. Serological studies on British isolates of the Sejroe serogroup of leptospira. II. An evaluation of the factor analysis method of identifying leptospires using strains belonging to the Sejroe serogroup 107

Little, T. W. A., Stevens, A. E. and Hathaway, S. C. Serological studies of British leptospiral isolates of the Sejroe serogroup. III. The distribution of leptospires of the Sejroe serogroup in the British Isles 117

Harford, J. P. An evaluation of a commercially available enzyme immunoassay test for the rapid detection of salmonellae in food and environmental samples . . 127

Platt, D. J., Brown, D. J., Old, D. C., Barker, R. M., Munro, D. S. and Taylor, J. Old and new techniques together resolve a problem of infection by *Salmonella typhimurium* 137

Vassiliadis, P., Mavromati, Ch., Trichopoulus, D., Kalapothaki, V., and Papadakis, J. Comparison of procedures based upon Rappaport-Vassiliadis medium with those using Muller-Kauffmann medium containing Teepol for the isolation of *Salmonella* sp. 143

Hampson, D. J., Fu, Z. F. and Robertson, I. D. Investigation of the source of haemolytic *Escherichia coli* infecting weaned pigs 149

Papadakis, J. A. and Mavridou, A. The assessment of two media for the confirmation of *Escherichia coli* in water samples in single-tube tests 155

Oppenheim, B. A., Sefton, A. M., Gill, O. N., Tyler, J. E., O'Mahony, M. C.,

RICHARDS, J. M., DENNIS, P. J. L. and HARRISON, T. G. Widespread *Legionella pneumophila* contamination of dental stations in a dental school without apparent human infection 159

OTOFUJI, T., TOKIWA, H. and TAKAHASHI, K. A food-poisoning incident caused by *Clostridium botulinum* toxin A in Japan 167

WILESMITH, J. W. and WILLIAMS, D. R. Observations on the incidence of herds with non-visible lesioned tuberculin test reactors in south-west England . . . 173

PATERSON, A. J., MACSWEEN, K. F. and PENNINGTON, T. H. *Haemophilus influenzae* subtyping by SDS-PAGE of whole-cell polypeptides 179

VINDEL, A., MARTIN-BOURGON, C. and SAEZ-NIETO, J. A. Characterization of non-typable strains of *Staphylococcus aureus* from cases of hospital infection . . 191

BURNIE, J. P., MATTHEWS, R., LEE, W., PHILPOTT-HOWARD, J., BROWN, R., DAMANI, N., BREUER, J. HONEYWELL, K. and JORDANS, Z. Four outbreaks of nosocomial systemic candidiasis 201

GAD, Z. M., SHERIF, A. A., MAHFOUZ, A. A., YOUSSEF, N., HASAB, A. A. and HASSAN, M. N. R. An epidemiologic study of the fungal skin flora among the elderly in Alexandria 213

No. 2 (OCTOBER 1987)

SPECIAL ARTICLE. GRANGE, J. M. and COLLINS, C. H. Bovine tubercle and disease in animals and man 221

BRINDLE, R. J., STANNETT, P. J. and TOBIN, J. O'H. *Legionella pneumophila*: monoclonal antibody typing of clinical and environmental isolates . . . 235

BRINDLE, R. J., STANNETT, P. J. and CUNLIFFE, R. N. *Legionella pneuomophila*: comparison of isolation from water specimens by centrifugation and filtration . 241

COHEN, D., FERNE, M., ROUACH, T. and BERGNER-RABINOWITZ, S. Food-borne outbreak of group G streptococcal sore throat in an Israeli military base . . 249

LARNHAM, M. and NEILSON, D. J. Group L beta-haemolytic streptococcal infection in meat handlers: another streptococcal zoonosis? 257

COATES D., HUTCHINSON, D. N. and BOLTON, F. J. Survival of thermophilic campylobacters on fingertips and their elimination by washing and disinfection . . 265

ROGOL M. and SECHTER, I. Serogroups of thermophilic campylobacters from humans and from non-human sources, Israel 1982–1985 275

NASTASI, A., VILLAFRATE, M. R., MAMMINA, C., MASSENTI, M. F., OLIVA, D. and SCARLATA, G. Molecular relationship among *Salmonella dublin* isolates identified at the Center for Enterobacteriaceae of Palermo during the years 1971–85 . . 283

WARD, L. R., DE SA, J. D. H. and ROWE, B. A phage-typing scheme for *Salmonella enteritidis* 291

LING, J., CHAU, P. Y. and ROWE, B. Salmonella serotypes and incidence of multiply-resistant salmonellae isolated from diarrhoeal patients in Hong Kong from 1973–82 295

LING, J. and CHAU, P. Y. Incidence of plasmids in multiply-resistant salmonella isolates from diarrhoeal patients in Hong Kong from 1973–82 307

SMITH, M. G. Calculation of the expected increases of coliform organisms, *Escherichia coli* and *Salmonella typhimurium*, in raw blended mutton tissue 323

HAVERKORN, M. J. and STAAL, M. J. An estimate for the source of coagulase-negative staphylococci in blood cultures 333

MILLAR, M. R., GRIFFIN, N. and KEYWORTH, N. Pattern of antibiotic and heavy-metal ion resistance in recent hospital isolates of *Staphylococcus aureus* 343

WATERMAN, S. H., DEMARCUS, T. A., WELLS, J. G. and BLAKE, P. A. Staphylococcal food poisoning on a cruise ship 349

RILEY, T. V., BRAZIER, J. S., HASSAN, H., WILLIAMS, K. and PHILLIPS, K. D. Comparison of alcohol shock enrichment and selective enrichment for the isolation of *Clostridium difficile* 355

ADRIAANS, B. and DRASAR, B. S. The isolation of fusobacteria from tropical ulcers . 361

COGHLAN, J. D. and KMETY, E. A new serovar *mogdeni* of serogroup Tarassovi of *Leptospira interrogans* isolated from a sewage plant in England 373

BAHAMAN, A. R., IBRAHIM, A. L. and ADAM, H. Serological prevalence of leptospiral infection in domestic animals in West Malaysia 379

ARIMITSU, Y., MATUHASI, T., KOBAYASHI, S., SATO, T. and CUI, J. J. Serodiagnosis of leptospirosis in China by the one-point MCA method 393

SEKI, M., SATO, T., ARIMITSU, Y., MATUHASI, T. and KOBAYASHI, S. One-point method for serological diagnosis of leptospirosis: a microcapsule agglutination test . . 399

PERRAUD, M., PIENS, M. A., NICOLOYANNIS, N., GIRARD, P., SEPETJAN, M. and GARIN, J. P. Invasive nosocomial pulmonary aspergillosis: risk factors and hospital building works 407

MAFFEI, C., MARRACINO, A., DI STANISLAO, F., PAURI, P., CLEMENTI, M. and VARALDO, P. E. Psittacosis in a highly endemic area in Italy 413

PHONGPAICHIT, S., MACKENZIE, D. W. R. and FRASER, C. Strain differentiation of *Candida albicans* by morphotyping 421

BLUM, D., HUTTLY, S. R. A., OKORO, J. I., AKUJOBI, C., KIRKWOOD, B. R. and FEACHEM, R. G. The bacteriological quality of traditional water sources in north-eastern Imo State, Nigeria 429

HUNTER, P. R. and BURGE, S. H. The bacteriological quality of bottled natural mineral waters 439

DIGIOVANNI, C., RILEY, T. V., HOYNE, G. F., YEO, R. and COOKSEY, P. Respiratory tract infections due to *Branhamella catarrhalis*: epidemiological data from Western Australia 445

FENOLL, A., BERRON, S. and VAZQUEZ, J. A. Analysis of penicillinase-producing *Neisseria gonorrhoeae* isolates in Madrid (Spain) from 1983–85 455

SAEZ-NIETO, J. A., FONTANALS, D., GARCIA DE JALON, J., MARTINEZ DE ARTOLA, V., PENA, P., MORERA, M. A., VERDAGEUR, R., SANFELIU, I., BELIO-BLASCO, C., PEREZ-SAENZ, J. L. and CASAL, J. Isolation of *Neisseria meningitidis* strains with increase of penicillin minimal inhibitory concentrations 463

TILLETT, H. E. Most probable numbers of organisms: revised tables for the multiple tube method 471

BAXTER, D. N. and GIBBS, A. C. C. How are the sub-units pertussis vaccines to be evaluated? 477

CLARKSON, J. A. and FINE, P. E. M. An assessment of methods for routine local monitoring of vaccine efficacy, with particular reference to measles and pertussis 485

POTTER, C. W., JENNINGS, R., ALI, M. J., WOOD, J. M., DUNLEAVY, U. and TYRRELL, D. A. J. Sequential infection or immunization of ferrets with a series of influenza A (H3N2) strains 501

NIKLASSON, B., LILJESTRAND, J., BERGSTROM, S. and PETERS, C. J. Rift Valley fever: a sero-epidemiological survey among pregnant women in Mozambique . . . 517

ANESTAD, G. Surveillance of respiratory viral infections by rapid immunofluorescence diagnosis, with emphasis on virus interference 523

ELFATIH, M., MOHAMMED, H. and TAYLOR, W. P. Infection with bluetongue and related orbiviruses in the Sudan detected by the study of sentinel calf herds . . . 533

EGHAFONA, N. O., AHMAD, A. A., ODAMA, L. E., ONUORA, C., GOSHAM, L. T. EMEJUAIWE, S. O. and WOGHIREN, E. I. The levels of measles antibodies in Nigerian children aged 0–12 months and its relationship with maternal parity . . . 547

BLACKBURN, N. K. THOMPSON, D. L. and JUPP, P. G. Antigenic relationship of West Nile strains by titre ratios calculated from cross-neutralization test results . . 551

NIKLASSON, B., LEDUC, J., NYSTROM, K. and NYMAN, L. Nephropathia epidemica: incidence of clinical cases and antibody prevalence in an endemic area of Sweden 559

PORTER, C. D., MUHLEMANN, M. F., CREAM, J. J. and ARCHARD, L. C. Molluscum contagiosum: characterization of viral DNA and clinical features. 563

No. 3 (DECEMBER 1987)

JOSEPH LISTER, 1827–1912 567

SPECIAL ARTICLE. LIDWELL, O. M. Joseph Lister and infection from the air . . 569

STUART, J. M., CARTWRIGHT, K. A. V., JONES, D. M., NOAH, N. D., WALL, R. J., BLACKWELL, C. C., JEPHCOTT, A. E. and FERGUSON, I. R. An outbreak of meningococcal disease in Stonehouse: planning and execution of a large-scale survey 579

CARTWRIGHT, K. A. V., STUART, J. M., JONES, D. M. and NOAH, N. D. The Stonehouse survey: nasopharyngeal carriage of meningococci and *Neisseria lactamica* . . 591

WITTE, W. and BRAULKE, C. Multiply- and methicillin-resistant *Staphylococcus aureus* strains isolated in the German Democratic Republic in 1985 and 1986. . . 603

SCOTLAND, S. M., WILLSHAW, G. A., SMITH, H. R. and ROWE, B. Properties of strains of *Escherichia coli* belonging to serogroup 0157 with special reference to production of Vero cytotoxins VT1 and VT2 613

SIMOONS-SMIT, A. M., VERWEIJ-VAN VUGHT, A. M. J. J., DE VRIES, P. M. J. M. and MACLAREN, D. M. Comparison of biochemical and serological typing results and antimicrobial susceptibility patterns in the epidemiological investigation of *Klebsiella* spp. 625

SANYAL, D., BURGE, S. H. and HUTCHINGS, P. G. Enteric pathogens in tropical aquaria 635

PELAZ, C., ALBERT, L. G. and BOURGON, C. M. Cross-reactivity among *Legionella* species and serogroups 641

SKIRROW, M. B. A demographic survey of campylobacter, salmonella and shigella infections in England 647

DIJKSHOORN, L., VAN VIANEN, W., DEGENER, J. E. and MICHEL, M. F. Typing of *Acinetobacter calcoaceticus* strains isolated from hospital patients by cell envelope protein profiles 659

JOHNSON, A. P., ABECK, D., WALL, R. A., MABEY, D. C. W. and TAYLOR-ROBINSON, D. Plasmid content, auxotype and protein-I serovar of gonococci isolated in the Gambia 669

UDWADIA, F. E., LALL, A., UDWADIA, Z. F., SEKHAR, M. and VORA, A. Tetanus and its complications: intensive care and management experience in 150 Indian patients 675

MOULE, J. H., CAUL, E. O. and WREGHITT, T. G. The specific IgM response to *Mycoplasma pneumoniae* infection: interpretation and application to early diagnosis 685

PALMER, S. R. and BIFFIN, A. H. B. The changing incidence of human hydatid disease in England and Wales 693

GOUDSMIT, J. and PAUL, D. A. Circulation of HIV antigen in blood according to stage of infection, risk group, age and geographic origin 701

PATEL, J. R. and SHILLETO, R. W. Detection of lymphoproliferative disease virus by an enzyme-linked immunosorbent assay 711

HARESNAPE, J. M., LUNGU, S. A. M. and MAMU, F. D. An updated survey of African swine fever in Malawi 723

HAMBLIN, C., KITCHING, R. P., DONALDSON, A. I., CROWTHER, J. R. and BARNETT, I. T. R. Enzyme-linked immunosorbent assay (ELISA) for the detection of antibodies against foot-and-mouth disease virus 733

PYHALA, R., PYHALA, L., VALLE, M. and AHO, K. Egg-grown and tissue-culture-grown variants of influenza A (H3N2) virus with special attention to their use as antigens in seroepidemiology 745

SUNTHARASAMAI, P., WARRELL, M. J., VIRAVAN, C., CHANTHAVANICH, P., LOOAREESUWAN, S., SUPAPOCHANA, A., SUPANARANOND, J. K. W., CHITTAMAS, S., BIJOK, U. and WARRELL, D. A. Purified chick embryo cell rabies vaccine: economical multisite intradermal regimen for post-exposure prophylaxis 755

REQUENA CABALLERO, L., REQUENA CABALLERO, C., REQUENA CABALLERO, I., SANCHEZ LOPEZ, M., VAZQUEZ LOPEZ, F., ROMERO GUERRERO, J. and CASADO JIMENEZ, M. Prevalence and risk factors of hepatitis B in Spanish prostitutes 767

BARTHOLOMEW, B. A., BERRY, P. R., RODHOUSE, J. C., GILBERT, R. J. and MURRAY, C. K. Scombrotoxic fish poisoning in Britain: features of over 250 suspected incidents from 1976 to 1986 775

ADDENDUM. RIBEIRO, C. D., BURGE, S. H., PALMER, S. R., TOBIN, J.O'H., and WATKINS, I. D. *Legionella pneumophila* in a hospital water system following a nosomocial outbreak: prevalence, monoclonal antibody subgrouping and effect of control measures 783